OPTIMOD Trio

AM/FM/Digital Media Audio Processor

With OPTIMOD Trio you get three audio processors in one box; you decide which one to use. Following OPTIMOD 5950 and OPTIMOD 5750, the OPTIMOD Trio is the third in line of Orban's new generation of audio processors. Compact in its design but big in functionality: OPTIMOD Trio can be configured as AM Audio Processor, as FM Audio Processor or alternatively as HD Radio/DAB+/Streaming Audio Processor. In the HD Mode, Trio is even suitable for TV audio processing. No matter if you need to have a flexible backup unit, your requirements for an audio processor might change or if you simply want your audio to sound the best it can, OPTIMOD Trio does the job.

Key Features

Three audio processors in one box: OPTIMOD Trio. Compact in its design but big in functionality: OPTIMOD Trio can be configured as AM Audio Processor, as FM Audio Processor or alternatively as Digital Media Audio Processor like HD Radio/DAB+/Streaming. The DM Mode, Trio is even suitable for TV audio processing. No matter if you need to have a flexible backup unit, your requirements for an audio processor might change or if you simply want your audio to sound the best it can, OPTIMOD Trio does the job.

- **AM Operating Mode:** With Trio you can achieve excellent quality in AM short wave, medium wave and long wave broadcast sound. It increases the density and loudness of the program material by Orban's proprietary multiband limiting and multiband distortion-canceling clipping, improving the consistency of the station's sound and increasing loudness and definition without producing audible side effects. OPTIMOD Trio compensates for the high frequency rolloffs of typical AM receivers with a fully adjustable equalizer providing 20dB of high-frequency boost (at 5 kHz).
- **FM Operating Mode:** Trio provides four FM processing structures: Five-Band, Low-Latency Five-Band, Ultra-Low-Latency Five-Band and Two-Band. It can be also used as stand-alone stereo encoder with latency as low as 2 msec and full overshoot limiting in both the left/right and composite baseband domains. The configurable ITU BS.412 "dual speed" Multiplex Power and ITU-R BS.1770-4 Loudness Controllers constrains MPX power and Loudness smoothly and reliably, ensuring compliance in countries that require it. An onboard RDS/RBDS generator supports dynamic PS scrolling and IP acceSs, includes UECP.
- **Digital Media Operating Mode:** You can choose between the Five-Band processing structure for a spectrally consistent sound and the Two-Band processing structure for a transparent sound that preserves the frequency balance of the original program material. Either processing structure delivers artifact-free loudness control. Orban's proprietary PreCode™ technology minimizes artifacts caused by low bitrate codecs often used in HD Radio™, DAB+ and streaming.
- **Factory Presets:** Trio also comes with a variety of factory presets.
- **Remote Control/Monitoring:** OPTIMOD Trio can be configured and controlled via any HTML5 web browser. It also supports the SNMP v2 protocol and in a future release Ember+ will be added.

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The OPTIMOD Trio Audio Processor, back panel.

- **ITU-R BS.1770-4 Loudness Control** facilitates compliance with modern target loudness recommendations like EBU R128.
- **ITU BS.412 Multiplex Power Control:** The defeatable "dual speed" Multiplex Power Controller constrains MPX power smoothly and reliably, ensuring compliance in countries that regulate it.
- **Silence Detection:** A programmable silence detector is available for the analog, digital, and AoIP inputs. It can generate alarms and allows automatic switching to a backup input/input audio storage.
- **Streaming Monitor Output:** The processed signal can be optionally monitored remotely via IP, allowing processor adjustment in locations where a clean off-air signal is unavailable.
- **µMPX interface:** The optional µMPX Interface allows you to transmit bandwidth-limited DMPX over IP.
- **APTmpX Interface:** The optional APTmpX Interface allows you to transmit full bandwidth DMPX over IP.
- **Internal Storage for Audio Backup:** An optional 2 GB Flash Memory provides two hours linear or twelve hours AAC, MP3 or OPUS encoded audio.
- **Internet Stream Decoder:** This optional feature can be used as a backup audio source received via Audio-over-IP.
- **Audience Measurement:** An internal Watermarking Encoder can optionally be added (Kantar, Nielsen or IPSOS).
- **Dual Power Supplies:** OPTIMOD Trio is equipped with monitored dual-redundant power supplies.
- **Safety Bypass Relays:** The analog, digital AES3 and the composite audio inputs and outputs have defeatable safety bypass relays that operate in case of hardware or power failures.
- **AES67/SMPTE ST-2110:** Dual redundant network interfaces are available for AES67/SMPTE ST-2110 Audio-over-IP connections (Dante or RAVENNA).

Audio Input Channels:	1 x stereo analog 2 x stereo digital AES3 2 x stereo AoIP
Audio Output Channels:	1 x stereo analog 2 x stereo digital AES3, or 1 x stereo digital AES3 + 1 x DMPX (configurable) 2 x stereo AoIP 2 x analog MPX/composite 1 x headphone output (for monitoring) Optional 1 x µMPX (DMPX over IP)
SCA Inputs:	2 x
Synchronization:	10 MHz clock input AES11 sync input 19 kHz pilot tone reference output
GPIOs:	8 x inputs, 2 x outputs
Latency:	4 - 22 msec (depending on the processing structure) Low-latency processing AES Output: 3 - 8 msec
IP Network:	1 x RJ45 Ethernet Management 1 x RJ45 AoIP (AES67, SMPTE ST-2110, Dante or RAVENNA)

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